

THE CHEMIST

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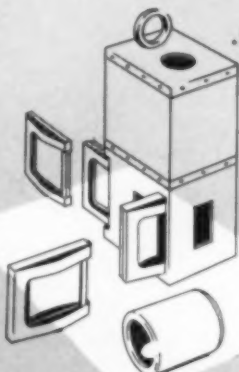
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C. P. NEIDIG

*AIC Councilor-at-large,
Recent Chairman, Pennsylvania Chapter
(See page 367)*



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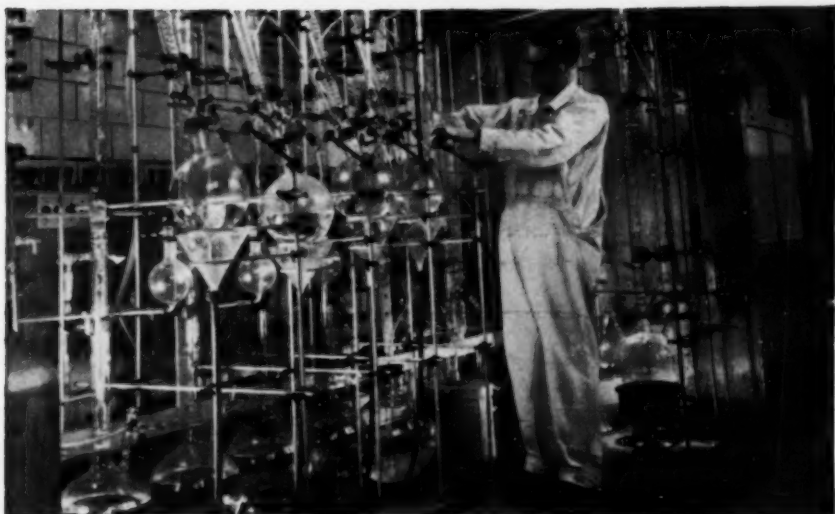
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SCHEDULED FOR EARLY ISSUES

Communications

Annual Reports

Award of N.Y. Honor Scroll, to Dr. R. E. Kirk, F.A.I.C.

The Chemist as a Human Being, Dr. R. E. Kirk, F.A.I.C.

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The Friendship Dinner

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Cover Picture

Charles P. Neidig, F.A.I.C., is a councilor-at-large of THE AMERICAN INSTITUTE OF CHEMISTS, and he has just completed the 1950-1951 term of chairman of the Pennsylvania AIC Chapter. He works for the Atlantic Refining Company, Philadelphia, as supervisor of Chemical Market Research and Development, Chemical Products Section.

He was born in Toledo, Ohio. He received the B.S. degree in chemical engineering in 1940 from The Pennsylvania State College, followed by study at Purdue University. His experience includes positions with Westinghouse Electric Company, Heyden Chemical Company, and as consultant. He is the author of a number of technical articles and contributes the column, "AIC Activities," to THE CHEMIST each month. His hobbies are gardening and color photography.

Mr. Neidig, called "Pete" by his many friends, has a strong sense of professional consciousness and during his term as chairman of the Pennsylvania Chapter endeavored to plan meetings which would attract more chemists and make them aware of the value of AIC meetings as an aid to their personal professional advancement. He is a member of the American Chemical Society, The American Oil Chemists' Society, Alpha Chi Sigma (he is past president of the New York Professional Chapter), The Chemists' Club, the Commercial Chemical Development Association, and the Chemical Market Research Association.



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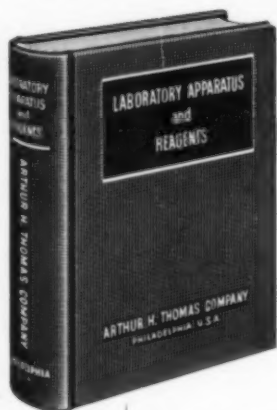


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EDITORIAL

Are You a Chemist?

Marcus Sittenfield, F.A.I.C.

Consulting Chemical Engineer, 1411 Walnut Street, Philadelphia 2, Pa.

HOW would you answer that question? Does a minimum of four years of college plus a job in a laboratory make you a chemist? A chemical technician, yes! A professional chemist, no!

In most of our daily activities, we only indirectly come in contact with the public. We do little in the way of explaining our activities to the public and less in trying to influence them. There was a time when our foremost scientists were also our great thinkers and philosophers.

In order to become recognized as professionals, we must do more than merely carry on our daily tasks. It is important to join our scientific societies because of the opportunity to increase our technical knowledge. We should also join them in order to promote the common good of the individual, publicize the accomplishments of the chemist, show how he benefits society, and we should also publicly stress the philosophical ideals of the chemist as expressed in the INSTITUTE'S Code of Ethics.

The technical professions have lagged far behind in instilling a professional feeling and approach in the embryo scientist.¹ We usually wait

until a man is established in a "job" and then try to appeal to his desire to better himself economically to have him join his fellow scientist in a society. In this respect we are merely acting as technicians. We must do better than this. We should encourage the setting up of standards to measure professional attainment. If necessary, we should set up a board, sponsored by the INSTITUTE, to study the type of work performed in the chemical industry and to delineate between that which may be classed as sub-professional, as in-training, and as professional.

The magic of licensure will not change the chemist, in the public's mind, from a technician to a professional. The public must be educated so that it will understand and acknowledge the professional standards and ethics of the chemist. It will then recognize that the chemist, as well as the lawyer, physician and theologian render essential service to the public.

We must stress at all times the professional aspects of our work. One of the best places to teach the concepts of professionalism and professional ethics is at the college level. The

college freshman should be made to feel that he is joining an honored profession and not just learning a technical skill.

In a recent issue of the *American Engineer*, Alos W. Graf writes: "Recognition (public) is given for initiative, ingenuity above average, public service, acceptance of responsibility, integrity and professional conduct. The public measure of an individual depends somewhat on

these activities, and it is only by making them known that his stature increases.

The Engineer, therefore, should capitalize on his engineering since he selected his profession because of a desire to create and be of service to others. From this will come recognition, prestige, security and happiness."

And so also the *Chemist*.

Employment Fundamentals

(An editorial, reprinted from the *Oil Paint and Drug Reporter*, on the Panel Discussion held at the AIC Annual Meeting, May 11th. Participants in the discussion included Dr. Earl T. Whitford, president, Oldbury Electrochemical Co., Dr. Max Bretschger, vice president, Buffalo Electro-Chemical Co., R. Lindley Murray, president, Hooker Electrochemical Co., and Russell Hardy of the Electrochemicals Department of du Pont. No formal papers were presented, and the audience joined in the discussion.)

Executives of four of this country's outstanding manufacturers of chemicals, constituting a panel of management at the recent annual meeting of The American Institute of Chemists, did a most commendable job of presenting the industry's policy with respect to the engaging, handling, and keeping of technical employees. They let down their hair on the attendant problems. They got down to brass tacks on everything from pay to promotion. They did such a bang-up job in the analysis of mutually satisfactory, productive, and profitable employment relations that it is strongly to be hoped that the proceedings of

the panel will soon be published and will have the widest possible circulation.

One of the most thought-provoking points developed by the panel was that it does not pay the chemical industry in the long run to raid the faculties of technical schools in the recruiting of industrial technical personnel. The maintenance of such personnel requires that the technical schools be adequately equipped. The teacher, under the proper cooperation of the industrial enterprises which depend on technical men, can be the imparter of fundamental training which will do much to remove the aversion

EDITORIALS

held by supervisory technicians toward what they call the necessity of a technical or scientific recruit's unlearning so much before he can begin to learn anything necessary in his work.

It is in recognition of the need for an adequate supply of specially qualified scientific and technical men in teaching positions that big chemical manufacturers have started and smaller manufacturers have taken up the practice of taking in the members of technical teaching staffs for annual periods of employment which is largely indoctrinational.

The management panel at the A.I.C. meeting talked with the audience, as man to man. Poses, clichés, and other artificialities or dodges were conspicuously absent. Cards were laid on the table and played from the top of the pile. There was no extolling of the absolute essentiality of scientific and technical training in the progress of the production and application of chemicals. That was taken for granted. The objective of the panel members was to tell how that essentiality can best be met by picking and fitting men for the jobs on which it stands.

Intergroup discussions of overall problems were among the ideas covered by the panel. So were many other intrafamily get-togethers designed to let everybody concerned know what was "cooking" and how the process was proceeding—also what would

have to be done in order that the resulting product might be served to those who wanted it and those who should have it, to the full satisfaction of both sides of that service.

Management—from top brass to assistant foremen—can do much for employment relations, for employee morale and the consequent productiveness of employees, for stability in all phases of operative procedure, and for the profit of everybody concerned by meeting all groups of employees in all sorts of conferences; by, as was suggested by the A.I.C. panel, with those who have taught the individuals who are now employees or who are teaching them in matters conducive to their better filling of their jobs—and that is something which management should in every way promote. Contacts should be in full confidence in both directions: a spade should be called a spade, or even a damned old shovel if the case so requires.

Employment relations are human relations. They must be handled by human beings acting as such. The example set in a particular technical area at the A.I.C. meeting can be emulated in all others everywhere to the distinct benefit of everybody participating therein.

Moved: The New England Office of Acheson Colloids Corporation, Port Huron, Michigan, to 89 Broad Street, Boston 10, Mass.

Evaluated: Scientifically trained young men, by Dr. Randolph T. Major, F.A.I.C., vice president and scientific director of Merck & Company, Inc., when he accepted the 1951 Medal of the Industrial Research Institute, Inc., at the Shoreham Hotel, Washington, D.C., May 16th.

Such young men, Dr. Major stated, "contribute enormously to the advancement of science . . . Let us hope that our country's policies will always permit the suitable training of such people and the utilization of such men along the lines of their training, even during war." He pointed out that twenty-four year old Lewis Sarett had been deferred from military service in 1942 to work on steroid hormones (cortisone); that Dr. Joseph Cline was under thirty when he began his collaboration with Dr. R. R. Williams which led to the first synthesis of thiamine. "Most of the men who developed processes used for the first production of penicillin and most of those who elucidated its structure were of military age. Dr. Albert Schatz was under twenty-five when he collaborated with Dr. Selman Waksman in the discovery of streptomycin, and Dr. Boyd Woodruff, who did much of the important work in developing fermentation of streptomycin, was under thirty at the time . . . I feel confident that every one of the drugs about which we have spoken would

not have found its place in therapy nearly as soon, or perhaps not at all, if competently trained, imaginative young men had not been available for work on them."

Events Scheduled: By the American Oil Chemists' Society, a Fall meeting at the Edgewater Beach Hotel, Chicago, Illinois, October 8-10th, and a short course on soaps and synthetic detergents in 1952, probably in the East. Francis Scofield, F.A.I.C., of the National Paint, Varnish, and Lacquer Association, will assist H. C. Black with that part of the program devoted to "Drying Oils."

Chosen: By the American Section of the Society of Chemical Industry, to receive the Chemical Industry Medal for 1951, Ernest W. Reid, F.A.I.C., president, Corn Products Refining Company, New York, N.Y. The medal will be presented at a dinner in the Waldorf-Astoria, New York, N. Y., on November second. Dr. Robert C. Swain, F.A.I.C., vice president of the American Cyanamid Company, and chairman of the American Section, will preside. Dr. Gustavus J. Esselen, Hon. AIC, consultant of Boston, will present the medal.

Research is the land of opportunity and the only unimpeded one this country has left for its young people.

—Dr. Harlan L. Trumbull

The Cooperative Spirit

Dr. Clyde E. Williams, F.A.I.C.

Director, Battelle Memorial Institute, 505 King Ave., Columbus, Ohio

(Abstract of an address before the Ohio AIC Chapter, April 26, 1951, when Dr. Williams received the Ohio Award. In it, he revealed his own secret of success.)



—Chemical & Engineering News

Dr. Williams and Dr. George F. Rugar, Chairman of the Ohio Chapter.

IT HAS always been my philosophy when I have a job to do, to work diligently at first to understand the fundamentals of it; then to find someone better qualified than I to do the job, and to give him my full support,

with complete freedom of action. In this manner, I have been able to work in many fields of activity simultaneously and to make progress far beyond the scope of my own abilities. This quality showed itself when as a

young man, I organized and captained a baseball team to play in a city league. I got so many good players that I finally ended up on the bench.

I have no exceptional talent unless it be this ability to find men of outstanding abilities and to secure their loyalty and friendship. This I have been especially successful in doing at Battelle. The large number of outstanding associates and their fine spirit of cooperation are responsible for whatever accomplishments your INSTITUTE ascribes to me. So in accepting this Scroll of Honor, I do it in all humility and with complete realization that I accept it on behalf of the Battelle staff which really is the rightful recipient.

Today our social and economic lives are so complicated that except in very special cases, the best accomplishments of the individual are the result of his cooperative effort. The success of both the workers and the leaders depends on their ability to work with others and their willingness to consider the other fellow's viewpoint.

This requirement for the cooperative spirit is especially important in today's technology. In the operation of research or management of chemical enterprises, no single person or group of persons can possibly know all the answers. Teamwork is absolutely essential. There is no longer a place for the fellow who plays the grandstand. I heartily concur with the remarks made by President Flett,

and urge you to follow his admonition: Develop a spirit of cooperation with your fellow workers and mix with others outside your own group and your own organization.

The major problems both of industry and our nation are extremely complex and require for their proper understanding a broad knowledge of technology. Thus the scientist and engineer can exert a great force for good by making his views known to his management and to the public. It is, therefore, important that the chemist and chemical engineer devote more time to the study of the many difficulties facing industrial management as well as the nation's problems in political economy, and then make his views known.

Today research and technology have emerged as the most potent influences in the entire world's economy. It represents a great national resource that in a free world will continue to grow and to become more significant in a nation's welfare. As our natural resources become fully used or exhausted, research and technology create new things to take their place, and in our system of free enterprise the new resource is not subject to depletion. It can only grow and become more productive. Research has grown rapidly in the United States especially during the last ten years. It is now a two-billion dollar operation, and its influence on national

THE COOPERATIVE SPIRIT

welfare will continue to grow in importance.

We who are in this great field of research and technology are fortunate. We are privileged to derive a great amount of enjoyment from our work and our associations. But there comes with it a responsibility to our fellows

and to our nation. I am pleased to know that THE AMERICAN INSTITUTE OF CHEMISTS is working toward the fulfillment of this responsibility. I congratulate you on your good fortune in being affiliated with this fine effort, and thank you for making me a part of it.

The Ohio Award

The Ohio Chapter of THE AMERICAN INSTITUTE OF CHEMISTS presented its first Annual Ohio Award, to Dr. Clyde E. Williams, director of Battelle Memorial Institute, at its annual meeting, held April 26, 1951, at the Hotel Carter, Cleveland, Ohio.

The citation to Dr. Williams reads:

The Ohio Chapter American Institute of Chemists

Presents the

Ohio Award

to

Clyde Williams

A distinguished physical chemist, metallurgist, and organizer, whose genius has brought distinction to the State of Ohio.

Objective: To rehabilitate the patent system, according to an announcement by the Patent Equity Association, Inc., 545 Fifth Avenue, New York, N.Y., which seeks to set up patent courts with judges having scientific and mechanical as well as legal training.

Publications Stockroom: Established by National Production Authority at New General Accounting Office Building, 4th and G Streets, N.W., Washington, D.C. where NPA and DPA orders, regulations forms, etc. may be obtained, up to five copies, free of charge.

Improved Processes: For the production of titanium metal, is the subject of a joint research venture announced by Dr. Charles Allen Thomas, Hon. AIC, president of Monsanto Chemical Company, and Richard S. Morse, president of National Research Corporation, Cambridge, Mass. The project will be directed by Dr. Robert A. Stauffer, vice president and technical director of National Research, and Dr. N. N. T. Samaras, F.A.I.C., Monsanto's Central Research Department director.

New Director: J. K. Roberts, F.A.I.C., general manager of Research and development, Standard Oil Company (Indiana), who was elected director of The Industrial Research Institute, for a three-year term.

To Avert Shortages: In laboratory instruments, apparatus, and supplies, Kenneth Andersen, executive vice president, Scientific Apparatus Makers Association, urged purchasers to make full use of National Production Authority Regulation 4, issued Feb. 27, 1951, when ordering maintenance, repair, or operating supplies. "Apparatus and supply distributors need these DO ratings from their customers badly to pass along to the manufacturers who must have them to obtain critical raw materials and components."

Resigned: Dr. Edward F. Degering, F.A.I.C., member of the faculty of Purdue University since 1930, who left Purdue, at the end of the Summer Session, to accept the position of manager of research at Buckman Laboratories, Memphis, Tenn., manufacturers of industrial microbiological control chemicals. Dr. Degering has been on leave of absence for the past two years for special research at Armour Research Foundation and later at the Miner Laboratories.

Honored: Russell H. Dunham, first president and first chairman of the board, by Hercules Powder Company, for his leadership in creating the company's research laboratories in Wilmington in 1930. Dr. Emil Ott, F.A.I.C., director of research, presided, and praised Mr. Dunham for having the vision and courage to establish the Experiment Station at a time when most research was being cut back. Dr. Raymond F. Schultz, F.A.I.C., director of the Station, presented Mr. Dunham with an engrossed testimonial.

Award of Merit: Presented by the American Society for Testing Materials, at its 54th Annual Meeting in June, to Dr. William Blum, Hon. AIC, chief of the Electrodeposition Section and assistant chief of the Chemistry Division, National Bureau of Standards, in recognition of his pioneering research in improving the quality of plated materials.

Opportunities in Chemistry

Dr. Maurice J. Kelley, F.A.I.C.

*Director, Industrial Development Laboratory, Nopco Chemical Company,
Harrison, New Jersey*

(Talk presented before the Science Vocational Conference, Adelphi College,
Garden City, N. Y., April 25, 1951)

WE WILL emphasize here primarily the industrial aspect of opportunities in chemistry.

I know a young man who did well as a chemistry major, and who graduated believing that chemical jobs could only be obtained in the laboratories of the petroleum companies, the drug manufacturers, or DuPont. Nothing could be further from the truth. There are almost no manufacturing companies that do not need and employ chemists. There are about forty major chemical manufacturers and many more smaller ones. To mention but a few of the leading ones, there are DuPont, Allied Chemical, Union Carbide, American Cyanamid, Monsanto, Dow, Rohm and Haas, and General Aniline and Film. There are about fifty major chemical process companies and many more smaller ones, whose main products are not usually thought of as chemicals but are made by chemical processes. To mention but a few of the leading ones, there are American Viscose, Celanese, International Paper, Pittsburgh Plate Glass, Proctor and Gamble, American Smelting and Refining, National Lead, and General

Mills. The book *Industrial Research Laboratories of the United States*, 9th edition (1950), National Research Council, Washington 6, D.C., lists some 2800 companies, almost all of whom have chemists in their laboratories. These are the principal companies of an estimated 7700 in the United States that maintain laboratories. The prospective job seeker might well study this book to learn something of the size, the laboratory locations, and the key technical personnel of the companies which might interest him.

It is very pertinent to chemistry students in the New York metropolitan area, to state emphatically that all of you cannot possibly find employment in chemistry in this area. It is nearer to the truth to say that only 10 per cent of you can find chemical jobs which will enable you to live at home. It is one of the facts of life that one who is really interested in a career in chemistry must be willing to go where the job takes him. This fact should be brought home to the student before he has decided to major in chemistry, not after he finds it very

difficult upon graduation to obtain the right chemical job at home.

Many Avenues

The person who graduates with a B.S. degree in chemistry has many avenues from which to choose the further course of his career in chemistry. Which paths are chosen depends first on knowing the various choices available, and may further depend on many factors such as the ultimate goal, the overall ability of the individual, his financial situation, general business conditions, the advice of someone else, or pure chance. Let us look at some of the possible paths.

Type of Employer

Industry
*Education
Government

Laboratory Jobs

Control
Analytical
Technical Service
*Research
*Administration

Non-Laboratory Jobs

Library
Market Survey
Patent and Legal
Technical Writing
Advertising
Pilot Plant
Production
Sales
Top Management

Those marked with an asterisk would warrant, if possible, a continuation of one's education to the Ph.D. level.

What about the many paths? But first, let us consider the ultimate goal. Is it to become rich—this is impossible through chemistry alone—or to become an officer of your company? To

become director of research, or an inventive and successful group leader? Or perhaps one's main purpose is to earn a good living for his family, to make discoveries that will benefit mankind, or to pass on to others the knowledge and virtues one has learned from his teachers. Having decided on a primary goal, and indeed several subsidiary goals may be simultaneously served, one should decide with the aid of counselors if his abilities are suitable and which path will most likely lead to the primary goal. An average student will never make a director of research; a Pasteur will never spring up in an advertising office; one will never become wealthy as a literature searcher. But a chemical graduate can achieve a very happy life by honest work in a capacity which is in harmony with his abilities and preferences. We are, of course, considering much more than grades—important though they are—when we speak of abilities.

Research, Development and Technical Service

Focusing our attention again on the many careers in chemical industry, we see that one who aspires to a life devoted to research and the direction of research should continue his education to the Ph.D. level. This is almost a must, and it is preferable to continue full-time graduate work after completing college. Because of lack of funds, some will have to acquire their graduate degrees by at

OPPORTUNITIES IN CHEMISTRY

least some part-time work. A large research laboratory is not composed of all or even mainly Ph.D.'s, but these constitute the most valuable personnel. Many do find a very satisfying life associating with and assisting their more highly trained and talented colleagues. The trend is to assign a group of people to work together on a project, so that one or two Ph.D. group leaders might have four or five bachelors of science working with them and assisting with the bench and library work.

It has been said that one research worker can make enough compounds to keep ten men busy trying to bring them to commercial utilization. A new drug made in one week's time may take a whole year to test properly. Numerous large industrial projects are reported to have taken ten years to bring to commercial success; for example, Nylon. So besides research, which studies fundamentals and synthesizes new products, there is a much larger pasture for chemical graduates in development, product application and evaluation. Eventually, new or modified products have to be field tested in customers' plants, so that technical contact men must be selected for this job. They are capable of effective cooperation with new acquaintances, and can solve problems in strange surroundings. The trial of established products by new customers, or the investigation of complaints

calls for technical service chemists with similar abilities.

For all of these jobs advanced degrees are not essential, though probably quite commonly found among the heads of such laboratories. Here the perspective is more attuned to the immediately practical, and involves the type of personality which likes to solve problems in a matter of hours rather than of days or weeks. Some truly brilliant research people would not be at all at home in such work. And so there are the two complimentary types; the research type in which technical knowledge, creative thinking and persistence are paramount, and the technical service type in which practicality, human relations and on-the-spot judgment are essential. Development men often lie intermediate between the two.

The Trainee and Job Rotation

Many firms will start young B.S.'s in the control laboratory, where many more or less routine analyses may be run. This is often the first stage of a rotation plan which may take the new employee through the analytical laboratory, one or more development labs, and possibly a pilot plant assignment. One should never underestimate the value of the training obtained in any phase. Greater knowledge of the company and its products is the biggest dividend of such a trainee program. Do not feel that your time is being wasted until you are assigned to research. In some

companies the opposite occurs. The new crop of graduates is plunked down in the research lab as assistants. Only the more promising ones are, after several months observation, selected for the planned job rotation which will broaden the young chemist's scope and will permit his abilities to be discovered and observed by more people. Some of the larger companies claim that such a scheme tells them within two or three years which persons will probably be their laboratory heads and other executives of the future.

After such a rotation, the better than average man will wind up in the laboratory whose head was most impressed by the trainee's abilities, and there the young chemist will have five to ten years to establish himself as a solid producer of results in research, development or technical service. If he has executive ability, he may have advanced to assistant laboratory head or higher. If he is destined for the top on either the laboratory or companywide scale, he should have begun the climb by the time he is thirty-five.

Non-Laboratory Jobs— Chemical Literature

What about non-laboratory jobs? I believe that, indeed if it has not already occurred, the time will not be long before there will be more chemists outside the laboratory than in. The growing extreme importance of the custody of the written record of

science has brought about the recent creation of the Division of Chemical Literature within the American Chemical Society. The geometric growth of the numbers of scientific articles on original research, of surveys, of review articles, of patents, of text-books and of encyclopedic volumes has long since made it impossible for any one person to read all he should read in his field, even if he spent his full time at only reading. At best, he can now only scan rapidly the most likely places, hoping that he will not miss something really important. Many companies have therefore set up an organization larger in scope than a mere library—in reality a technical information department. The function of this department is not only to answer questions, no matter how complicated or lengthy, but includes the responsibility to read exhaustively every piece of chemical literature that can possibly be of interest to the company's present or prospective business. It is the further responsibility of this group to, on its own initiative, bring each piece of pertinent information to the attention of the appropriate officer, laboratory head or chemist. Frequently, monthly digests of the literature by subjects of company interests are prepared and circulated throughout the laboratories and other departments. Such chemical literature jobs attract many graduates who are not fond of laboratory work, and

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are especially well-filled by girls with a natural bent and training in stenographic work as well. The future secretaries of the company officers may well be chosen from the staff of the technical information service.

Another important function whose raw material is the printed word is that of the project survey and market research groups. The projects of such groups usually involve gathering all information bearing on a certain subject or product. This includes, besides a summary of scientific information both from the general literature and from the company's own laboratory reports, information on such aspects as companies presently or about to be active in the specific field or product, United States production and price figures over the years, a brief review of raw materials, known or possible uses of products, the advantages and disadvantages of the various competing companies, plant and production data and costs, and the like. New graduates are seldom placed in such work, but this is another of the possibilities to which the promising trainee may be assigned after he has learned a good deal about the company for which he works.

Similarly, there is need for persons with chemical training in the patent and legal departments. Medium size or larger chemical companies have a constant backlog of new inventions on which patents are to be filed. The filing of a single patent application may

require weeks of careful drafting of the patent, in close consultation with the chemists involved and with constant delving into laboratory notebooks, reports and the prior art. No one is better fitted for this work than a chemist who has been assigned to the patent department. My own company has done just this, and the present manager of the department, formerly of the laboratory staff, has become, by going to law school at night, an attorney accredited to plead cases before any court in the land.

Technical Writing— Self-Expression

A lot of what we have been just discussing might be classified under technical writing, but there are other jobs perhaps more correctly identified with that title. The ideal case is actually writing for technical and trade magazines, but advertising firms that specialize in chemical accounts have need for chemical writers. Chemical companies also require chemists who are good writers in their own advertising departments and in the departments which prepare technical data bulletins and trade literature.

It is fairly obvious that skill in writing clearly, concisely and forcefully is a must for success in these jobs. Yet I would like to stress that this skill is just one phase of expressing one's self—a greatly overlooked requirement in any job. It may not be stretching the point too much to say ability to express one's self well is the

most important single factor to success. In order for ideas to be productive they must be transmitted to other people who will like them and act on them. Clear speaking and clear writing are sure indicators of clear thinking, and the converse also is true. The old truism "Actions speak louder than words" was probably meant to apply to the field of morals and as a warning against hypocrisy. It most certainly does not apply to the world of business and industry, because the important people are too busy to stand around and watch your actions, but they will read or listen if you have something important to say.

Since chemists are judged so much by what they say and write, and how they say and write it, one should exert considerable effort to improve his speaking and writing style. Back this up with sound technical knowledge, an inventive mind, a good memory, and one will surely go far in his chosen field of chemistry. Be weak in self-expression, and the other abilities, no matter how great, will always fall short of their potentiality.

Pilot Plant and Production

Synthetic chemistry, especially, demands that laboratory procedures be repeated on successively larger scales in order to eventually arrive at regular plant production. This is necessitated for several reasons, but they all boil down to these: (a) some reaction speeds are dependent on the diameter of the reaction mass, and (b) new

production equipment may have to be designed, and some smaller scale units are tried out first to avoid building a large-scale plant that doesn't work. Thus, what may have been made in no more than five-pound quantities in the laboratory may be made in 50-lb. and then 500-lb. quantities in the pilot plant, with rigorous control and recording of all variables. Improvements in process or yields may even be contributed by the inventiveness of those engaged in pilot plant work. Naturally, engineering begins to play a more important part in pilot plant work and, incidentally, the heavy machinery and tools involved may be a factor in why women are not very often found in pilot plant work.

Work for chemists in the full scale plant is apt to be either high quality but routine operation of equipment or quality control, or supervisory and administrative. Capable work is required, but the top-notch creative thinker should not wind up here. Nevertheless, pilot plant and production work may be two of the phases in the job rotation program referred to earlier several times, to which some companies assign the young men of whom they think well enough.

Sales—Top Management

The salesman has to be able to express himself well, and he has to have other things which most chemists do not need so much in their careers: continual optimism, a taking personality, great interest in meeting people

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and dealing with them, a great desire to be on one's own and to improve oneself. If these qualities and personality traits are stronger in you than are some of the others alluded to already, maybe sales is your ultimate destiny. Most chemical companies want their salesmen to be technically trained, and are very apt to recruit their salesmen from young trainees of several years experience who may be in any one of the positions described already. In addition to the actual salesman, his department back in the home or regional office needs people with chemical training to handle correspondence, to intelligently plan literature distribution and direct mail operations, to effect liaison with the laboratories, and to otherwise make sure that the customer receives maximum service.

I will not presume to tell you how the outstanding chemist reaches the top levels of management—department managers, company officers. Perhaps it is clear by now. Suffice it to say that, in ever-increasing numbers, chemists are reaching these levels. In many companies, chemically trained officers now outnumber their colleagues whose experience only includes business, sales and finance. Lest we give too much credit to the magic name of chemistry, let us reflect that these men rose to great heights only because to sound technical knowledge they added, in eminent degree, the

human qualities of character and personality: high ideals, constant striving for self-improvement, accuracy in all things, discerning powers of judgment, and the spirit of cooperation.

Elected: Dr. Gustav Egloff, Hon. AIC, as a director of the Armed Forces Chemical Association, Chicago Chapter, and as a member of the Cornell University Council. The World Oil Situation was discussed by Dr. Egloff, before the Chicago Oil Men's Club, June 28th. He also spoke at the Third World Petroleum Congress, held at The Hague, Holland, in May and June.

Preserved: The Declaration of Independence and the Constitution of the United States, in sealed glass enclosures, in an atmosphere of helium. The procedure was recommended to the Library of Congress, custodian of the documents, by the National Bureau of Standards in cooperation with scientists of Libbey-Owens-Ford Glass Company.

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Rare Chemical History Documents: Were exhibited to the technical staffs of Dexter Chemical Corporation, New York, N.Y., by Sidney M. Edelstein, F.A.I.C., president. The highlight of the exhibit was the Priestley letter (1783) in which the great English scientist accorded Watt with the discovery of the composition of water. Mr. Edelstein explained that, "it wasn't until publication of this data in *Chymia*, 1948, the international journal of the history of chemistry, that the composition of water . . . a most important textile processing agent . . . was properly credited to James Watt, who was also instrumental in introducing chlorine as a textile bleaching agent and whose mechanical inventions on steam engines were responsible for the real beginning of our modern textile industry."

Executive Committee Members: John B. Calkin, F.A.I.C., director of the Department of Industrial Cooperation, University of Maine, and R. A. Wilkins, F.A.I.C., vice president, Bird & Son, Inc., who have been appointed to the nine-member committee responsible for the operation of The University of Maine Pulp and Paper Foundation. The Foundation provides financial assistance for undergraduates, advances research in pulp and paper technology at the university, and increases the teaching facilities in the field.

Chemical Exposition: The Twenty-third Exposition of Chemical Industries will be held in New York, N.Y., November 26th to December 1st, at Grand Central Palace.

To Egypt: Dr. Walter L. Obold, F.A.I.C., professor of biological sciences, Drexel Institute of Technology, Philadelphia, Pa., who has been selected to lecture at the University of Ibrahim Pasha, Cairo, during the coming academic year. He was selected by the Board of Foreign Scholarship under the Fulbright Award, made by the Department of State. Dr. Obold is chairman of the Philadelphia Section of the Institute of Food Technologists and past chairman of the Pennsylvania Chapter of THE AMERICAN INSTITUTE OF CHEMISTS. Ibrahim University is newly-formed from the institutes of higher learning in Cairo.

Price Stabilization Office: The Regional Office for New York State and Northern New Jersey is now located on the fourth and fifth floors of the John Wanamaker Fashion Store Building, 70 E. 10th Street, New York, N.Y.

Speaker: Dr. Eduard Farber, F.A.I.C., before the Goethe Society of Maryland and the District of Columbia, January 19th, on Goethe's *Torquato Tasso* and the *Tasso-Conflict of Today*."

When a Chemist Writes

Edward Thomas

220 Broadway, New York, N.Y.

(Try these tricks to invigorate technical reports.)

THE chemist who is asked to write a report may picture himself as standing in front of an open door leading to a stage, and there he is to set forth his report before a large audience of upturned faces.

To win the attention of that audience and to hold it, he should make every effort to act out a drama, putting dramatic life into a scene which otherwise may become a dull black and white still picture of a pose.

To put a sense of acting into what his words say he must put his report into words of action, and a search through dictionaries for the needed words brings him to verbs and these are defined as words which express action, existence or condition.¹

The chemist who tries to cast his report around verbs of action finds that so far as his efforts succeed they win the attention and interest of almost every reader, because it has been found that almost any writing sounds interesting where every verb is a verb of action. Even though a reader may not understand what the words say, the words often sound interesting.

An example of skillful use of verbs of action can be found on many a

page of the well-known book, *Organic Chemistry*, by Fieser and Fieser, and the following sentences serve as an example of every day writing.²

"Harries was the first to utilize the reactivity of the double bond in order to gain an insight into the structure of the rubber molecule, and the evidence for the general skeletal structure and for the position of the double bond is based almost entirely on his ozonolysis experiments (1905-1912). By passing oxygen containing 6% of ozone into a solution of rubber in chloroform or ethyl acetate, Harries obtained a glassy explosive mass of the composition $(C_5H_6O_3)_n$. Decomposition of the ozonide with water afforded levulinic aldehyde, its peroxide, its further oxidation product levulinic acid, and only minute traces of carbon dioxide, formic acid, and succinic acid. These experiments were later verified and extended by Pummerer (1931), who was able to account for about 95% of the carbon skeleton in the form of decomposition products, almost 90% of which consisted of levulinic compounds. This means that the isoprene units must be linked head to tail."

This paragraph uses thirteen different verbs of action in thirteen lines, viz: utilize, gain, base, pass, contain, obtain, afford, verify, extend, account, consist, mean, link. Also the two phrases "was the first" and "was able" involve a sense of action. All

these verbs keep up a sense of something doing, and are each used accurately in connection with a special set-up of nouns, adjectives and adverbs. The only verb used twice is the auxiliary "was". The verbs each fit the suggestion of the other words in each sentence.

Perhaps the reader, at this point, should be reassured that he will find plenty of verbs of action to satisfy his needs if he lists them.

A list, including only verbs of six letters or less, amounted to about two thousand verbs of action in those short two to six letter words. Many of the verbs of action the chemist uses, and will use, are longer verbs, such as discover, combine, precipitate, dissolve, and evaporate. Evidently no poverty of words threatens to limit the chemist. The chemist needs only to study the available vocabulary.

But the chemist finds that he needs to modify many of his sentences when he puts in them verbs of action. Thus Napoleon speaking to his troops in the shadow of the pyramids in Egypt did not say, "You are on historic ground" but, turning the sentence around said to them, "My soldiers, forty centuries look down upon you".

Often, therefore, the chemist finds his writing becomes interesting when he replaces all other verbs by verbs of action. Sometimes, moreover, it is possible to add further interest to a sentence by turning all nouns and

adjectives and adverbs into sense-impression words, mostly words that paint vivid visual pictures.

When the chemist has chosen such words and replaced all other nouns and adjectives and adverbs by sense-impression words he finds himself much in the position of the great classical writers whose words have kept alive the ancient classical stories.

The chemist writer of the report, after suggesting or naming the object or purpose of his report, would do well to put himself in the position of Dante, of whom Thomas Babington Macaulay says,³ "he is the eye-witness and ear witness of that which he relates. He is the very man who has heard the tormented spirits cry out for the second death, who has read the dusky characters on the portal within which there is no hope."

Such descriptions become persuasive of truth, Macaulay says when he goes on to summarize the work of Dean Swift. "When Lemuel Gulliver, surgeon, resident of Rotherhithe, tells us of pygmies and giants, flying islands, and philosophizing horses, nothing but such circumstantial touches could produce for a single moment a deception on the imagination."

Defoe's fictitious *Journal of the Plague Year*⁴ is equally persuasive through its prosaic detail so that the vivid trivialities carry the sense of truth into the mind of a reader.

Nearly two hundred years ago, Lessing the dramatist said that the

WHEN A CHEMIST WRITES

Greek poet Homer skillfully described his hero putting on his clothes, one after the other, thus adding drama to the verbal picture of the hero clad in his warrior garments.⁵

If the writer of a chemical report follows the example of Dean Swift, of Defoe, of Homer, and of Dante, he finds that every image which is strongly presented to the mental eye produces the effect of reality. Generalization is indispensable to the advancement of knowledge but particularity is indispensable to the creations of the imagination. The great mass of men must have images.

The chemist falls short of utilizing his opportunities, if he leaves in his writing a single verb that fails to express action. Perhaps it is hard to realize the importance of thus removing every verb that fails to picture action.

John Locke who lived three hundred years ago, may supply the answer. Locke says that words which carry pictures of the outside world go on and do things when they enter the mind, but notion words, as he calls them, notion words die when they enter the mind, and by notion words he means words that we call abstract words.⁶

The chemist who writes in verbs of action, never breaking the chain of actions, keeps on doing things in the mind of his readers. Once he uses a verb of mere existence or condition, his words stop doing things in

the mind of his readers, action dies and breaks the chain.

One more suggestion may be given, and that points out that unless an experiment or test is being described, every verb, so far as possible should carry the present tense. It often seems natural to use the future, but the skillful writer jumps back to the present as soon as possible, thus adding present interest. For example, this last sentence has become more interesting by saying the skillful writer jumps, although the first impulse is to write "the skillful writer will jump."

On the other hand, in describing an experiment or test, the verbs should ordinarily all take the past tense, thus giving the unconscious impression that a genuine past event is being described. The present tense often carries an implication that the words generalize or theorize about a test, and if the future tense is used, the words become a suggestion of a prediction not a description of a past event.

To repeat, a fairly safe pattern to follow is found on many a page of Fieser and Fieser's book when read in the light of what is said above about verbs of action, about nouns and adjectives and adverbs which carry sense impressions, and what is said about using the present tense of verbs of action.

Several of the Fieser chapters begin by describing a past action, perhaps of

some person, and then, following this up with descriptions of present day data or reactions or with a generalized statement; further follow that that up with the present day data and reactions recited in natural order. Such gives a useful pattern to copy.

Verbs of action are found important because they approach the mind both through the eye and through the muscles. Nouns, adjectives and adverbs become important when they do things to the mind through one of the senses, usually through visual images.

Teachers of grammar list several other kinds of words, conjunctions, prepositions, and pronouns of various kinds. One safe suggestion to give out takes the form of a rule to use these other kinds of words as seldom as seems reasonably possible.

Two rules found in many books on writing seem ill-founded. One rule says never to repeat a word. The other rule often found is to cut out adjectives. A better rule about repeating words could be worded thus, never repeat a noun or verb unless it is used absolutely accurately the first time, but when accurate in its environment try to cling to it. The safest rule to follow with adjectives seems to be to use only sense-impression adjectives, but to use them freely so long as they add to the picture being painted.

The word "when" usually turns out to be a weak beginning for a

sentence, and can often be avoided to advantage. That seems true despite the beginning of the Declaration of Independence written by the skillful hand of Thomas Jefferson. He made his meaning clear in the next six words, "in the course of human events".

Other conjunctions aside from the essential word "and", sometimes become necessary elements in a sentence, but seldom are needed except to clarify the relationship of one sentence to another, as by inserting moreover, or again, or thus. It will be noted that the paragraph quoted from Fieser and Fieser contains no conjunction to unite sentences. The verb of action in one sentence naturally implies the proper sequence of events in the next. Prepositions fall into a special class of conjunctions that both unite words and also carry a sense of relationship. If they fit a verb or complete the verbal sense they seem properly used.

Finally, it may be suggested that the first rule in writing reports is to tell people the final purpose of the acts reported, and then write what has been done, has been seen, has been heard, and has been felt by the sense of touch, using verbs of action.

When the writer reaches the end of the report, go back, test the verbs; cut out every part of the verb "to be" unless it serves as an auxiliary verb; cut out every verb of mere existence or condition, replace each by a verb

of action, rewriting the sentence to fit the newly selected verb, and, if need be, make changes to reduce the whens, the whiles, the ases, the sinces, and alter to insert nouns, adjectives, and adverbs that contribute to sense impressions, that contribute especially to visual pictures.

Almost any chemical report written with words thus chosen is usually found to be accurate, adequate and interesting.

¹ Winston's Simplified Dictionary, 1937

² 1944 edition, page 327, quoted by permission.

³ Essay on Milton, Edinburgh Review, Aug., 1825.

⁴ Daniel Defoe, Journal of the Plague Year, 1722.

⁵ Gotthold E. Lessing, Laokoon, 1766.

⁶ Locke, Essay on the Human Understanding, Book II, Chapt. XXII, par. 2. Book II, Chapt. VI, par. 1, 1690

New Resin Plant: To be constructed for B. F. Goodrich Chemical Company on 175-acre tract in Calvert City, Kentucky, to cost \$5,000,000. The plant, which will produce vinyl chloride monomer, is scheduled for operation early in 1953.

National Conference on Coastal Engineering: To be sponsored by Southwest Research Institute, the Texas A. & M. Research Foundation, the University of Houston, the Rice Institute, the University of California, the Houston Branch of the American Society of Civil Engineers, and others, at Houston, Texas, in November. Information may be obtained from Charles E. Balleisen, Southwest Research Institute, San Antonio, Texas.

New Officers: American Society for Testing Materials; President, T. S. Fuller, General Electric Company; Vice President, L. C. Beard, Jr., Socony-Vacuum Laboratories; Executive Secretary, C. L. Warwick, ASTM headquarters, 1916 Race St., Philadelphia 3, Pa., and new members of Board of Directors, J. W. Bolton, The Lunkenheimer Company, R. A. Schatzel, Rome Cable Corporation, E. O. Slater, Smith-Emery Company, Stanton Walker, National Sand and Gravel Association, and F. P. Zimmerli, Barnes-Gibson-Raymond.

New Laboratory on Tropical Diseases: To be opened this fall on the plantation of the Boca Chica Sugar Company, twenty-five miles east of Ciudad Trujillo, Dominican Republic. The new clinic is a branch of the Institute of Tropical Medicine of the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina, under direction of Dr. Thomas T. Mackie.

Uses for Fission Products: A study being conducted by Stanford Research Institute, Stanford, Calif., for the U.S. Atomic Energy Commission. A descriptive booklet, "Industrial Utilization of Fission Products—a Prospectus for Management", is available on request to Project 361, Department of Business and Industrial Economics, Stanford Research Institute.

Necrology

Emory F. Marsiglio

Emory F. Marsiglio, manager of Government contracts for Merck & Company, Inc., died at his home in Cranford, New Jersey, March 23, 1951, at the age of fifty-nine. He was born in Lee, Mass. He received the B. Sc. from Lafayette College in 1919, having previously attended Drexel Institute.

His initial positions were chemist for a short period in 1919 with the Alpha Portland Cement Co.; assistant superintendent for the Carbon Plant of West Virginia Pulp & Paper Company, in 1920; open-hearth work with the Bethlehem Steel Co., from 1920 to 1921; and with the Engineering Corps of the Lehigh Valley Railroad from 1921 to 1922. In 1922, he joined the staff of J. T. Baker Chemical Co. as research chemist. For the past thirteen years he had been associated with Merck & Company, Inc., where his last assignment was manager of Government contracts.

His memberships included the American Chemical Society, The Chemist's Club of New York, the Society of Chemical Industry, Echo Lake Country Club, and the Masons. He was elected Associate in THE AMERICAN INSTITUTE OF CHEMISTS in 1923 and raised to Fellow in 1924.

Not True: That residual radiation after an air burst of an atom bomb will render the area unsafe. Brigadier General James Cooney, radiation safety adviser to Joint Task Force 3, U.S. Atomic Energy Commission, reports that "Our experience in recent test programs repeatedly has demonstrated that radiation hazards will not delay rescue and recovery work . . . The immediate radiation hazard from the air burst disappears after the first two minutes. Rescue, fire fighting and recovery work can begin immediately in any area where there is life . . ."

Safety Awards: made in June to one-hundred and fifty-nine U.S. chemical plants, by the Manufacturing Chemists' Association, Inc., for concluding a calendar year without a reportable lost-time or disabling injury.

Water Conservation: The primary objective of the newly-formed Cooling Tower Institute, 8 East 9th St., Kansas City 6, Missouri. The charter membership is composed of seven large manufacturers of industrial water cooling equipment. The president is Raymond C. Kelly, J. F. Pritchard & Co., Kansas City, Mo.; vice president J. R. Fluor, The Fluor Corporation, Ltd., Los Angeles, Calif.; Secretary-treasurer, L. T. Mart, The Marley Co., Inc., Kansas City, Mo.



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Committee on Professional Education

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IT IS unnecessary to call the members' attention to the fact of the fundamental importance of education (especially professional education). So almost every number of *THE CHEMIST* gives not only some point of view on education in chemistry, but no chemical educator or educated person can pass over these partial surveys of need.

I take it we all realize these are not directed solely at formal education. Sincerity is of the essence of life.

Teachers continually require the goad (prod) of comment and criticism, even though as a whole they give more attention than any other group to their own

shortcomings, nor can they usually measure the final outcome of their effort but by such comments. The INSTITUTE is making no mean contribution to education by these encouraging comments and criticisms.

There is not space for a recalling of the meaning of education. Let us remember we are careless when we speak of "getting" an education—it is not even complete even at death. We do not "get" or "acquire" anything which is an unending process. We merely get well-started at the process. With education we get the best of it outside the schools. What we get out of any experience, even class or laboratory work, is in proportion to what we bring to it (preparation or experience).

So formal education gives us the start to acquire an ever-growing professional education. Formal education must never be guilty of allowing its theories to prevent anyone getting even any part of that which he desires. Anything requiring work may prove of value. Nor is any experience in life valueless. Life, even professional life, is the focusing of all prior experiences upon today's problem. Even the current MacArthur incident is education and the basis of deep thought. How can we prevent such loss of experience?

—Dr. James R. Withrow, *Chairman*

Committee on Honorary Membership

ANNUAL REPORT 1950-51

THE Committee on Honorary Membership of The American Institute of Chemists has held two meetings during the year and has had a very considerable amount of correspondence on Committee matters.

The first meeting was held November 4th, 1950, and all of the Members of the Committee including President Flett were present. It was unanimously voted that the names of Alexander Silverman and Jerome Alexander be recommended to the Council for Honorary Membership during the fiscal year 1950-51. These recommendations were subsequently confirmed by the Council and the Honorary Memberships have been awarded.

It was unanimously voted that this Committee recommend to Council that the acceptance of Honorary Membership be obtained from the individual concerned before publishing such election in the minutes of the council.

A second meeting of this Committee was held in Boston on April 3, 1951. A number of possible candidates for Honorary Membership were discussed.

The Committee voted to recommend to Council that three Honorary Memberships be awarded for the year 1951-52. These nominations are being forwarded to the Secretary, with the hope that they can be acted on by Council at the Annual Meeting in Niagara Falls, on May 10th.

—Dr. Gustavus J. Esselen, *Chairman*

National Council Meetings

Meetings of the AIC National Council will be held at The Chemists' Club, 52 E. 41st Street, New York, N.Y., at 6:00 p.m., on the following dates:

October 10, 1951

November 14, 1951

January 9, 1952

April 9, 1952

Chemistry for Cosmetologists:

a series of lectures and demonstrations presented by Florence E. Wall, F.A.I.C., consultant of New York, N.Y., at the First Annual Institute of Cosmetology, held at the University of Texas, Austin, Texas, July 23rd to 28th.

New Publication: *Defense Production Record*, a weekly, issued for the Defense Production Administration by the Office of Public Information of the N.P.A., U.S. Department of Commerce. Subscription, \$2.50 a year. Superintendent of Documents, Government Printing Office, Washington, D.C.

Appointment: Dr. John F. Corwin, F.A.I.C., as chief of the Resins, Plastic Materials and Adhesives Section, Chemical and Drugs Branch, Rubber, Chemicals and Drugs Division, of the Office of Price Stabilization. Dr. Corwin is on loan from the Chemical Division of the Koppers Company, Pittsburgh, Pa.

AIC Activities

C. P. Neidig, F.A.I.C.

Chicago Chapter

ANNUAL REPORT 1950-51

The two phases of chapter operations which can be readily designated numerically are membership and finances. Both have risen to the highest point of chapter record. The membership as of March 15th was 373.

The present membership position has been the result of an unusually successful project carried on by Dr. Harold Coleman's committee. Members of this important committee have a wide geographic distribution and cover a major portion of the eleven state chapter area. As a result, new members have been obtained in many locations other than the immediate vicinity of Chicago. Thirty-five new members were obtained in the first nine months alone.

The chapter takes special pride in the recently published work of its Economic Status Committee. This article entitled "Employment Practices for Chemists and Chemical Engineers" appeared in the January 22nd issue of *Chemical and Engineering News*.

The first meeting of the year featured the presentation of the Chapter's annual honor scroll to Carl S. Miner, which was well publicized and well attended. There followed at subsequent meetings programs of unusual merit including these subjects:

"The Effect of the Federal Wage and Hour Regulations on the Professional and Economic Status of Chemists"

"Case Histories of the Chemist as a Dollar Producer"

"Practical Techniques of Rewarding the Chemist for his role in Creating New Wealth"

"The Scientist in Politics"

The last of the above subjects featured an address by Dr. Charles Price, Head of the Chemistry Department at Notre Dame University and recent candidate for United States Senator. Mr. Herbert Schwartz, as program chairman, was responsible for the above list.

The regular meetings take place in the excellent facilities of the Western Society

of Engineers in accord with arrangements made by Mr. R. F. Davis.

The presentation of medals to outstanding college and university chemistry students is being expanded to take in the increased geographical area and this year 24 such awards will be arranged by the Chicago Chapter through the committee headed by Dr. C. A. Johnson.

All things considered, the Chicago Chapter is enjoying a successful year, the direct result of the capability and diligence of its committees plus the sustained interest of its members in A.I.C. affairs.

—Bruce M. Bare, *Chairman*

Los Angeles Chapter

ANNUAL REPORT 1950-51

The Los Angeles AIC Chapter has held three meetings in the year 1950-51 and a fourth meeting is to be held on May 3, 1951. A fifth meeting is planned in June to present AIC student medals and memberships to graduating seniors from universities and colleges in the metropolitan area of Los Angeles.

The first meeting of the year was held on October 19, 1950, in Los Angeles and on this occasion Dr. Robert Swain, professor Emeritus of Stanford University, was presented with a Certificate of Honorary Membership in the AIC.

The second meeting came on December 11, 1950, at which time the group was addressed by Dr. Johan Bjorksten, director of the Bjorksten Research Laboratories, who spoke on "A Day at the Oak Ridge Laboratories".

The third meeting was held on February 19, 1951, and at this meeting Dr. A. J. Haagen-Smit, professor of biochemistry, California Institute of Technology, and chief research consultant of the Los Angeles Air Pollution Control District, addressed the members on "The Recent Developments in the Air Pollution Program."

On May 3, 1951, the group is to be addressed by Dr. George W. Beadle, professor of biology and chairman of the Division of Biology at the California Institute of Technology.

The last meeting of the year is to be held in June at which time officers are to be elected for the coming year, and student medals awarded to the graduating seniors.

—Romeo P. Allard, *Chairman*

Ohio Chapter

ANNUAL REPORT 1950-51

The Ohio Chapter of THE AMERICAN INSTITUTE OF CHEMISTS joined with the chapters of the Electrochemical Society, American Institute of Chemical Engineers, and the American Chemical Society in the second Annual Chemists Dinner at the Hollenden Hotel, November 9, 1950. Dr. S. D. Kirkpatrick, editorial director of *Chemical Engineering* was the guest speaker. The purpose of this meeting was to afford the opportunity for chemists and chemical engineers to become better acquainted with each other and to foster a spirit of friendship among all of the chemists and chemical engineers in the territory. In his talk, Dr. Kirkpatrick stressed the desirability and need of mutual understanding and cooperation among this group in a given area and nationally.

The Ohio Chapter is divided into districts, each having its own District Director. In spite of diligent effort on the part of the several District Directors, it was not possible to have a meeting in each district during the past year. However, two were held by the Dayton district through the efforts of the Director, Mrs. Jacqueline F. Marcovich.

The Chairman of the Ohio Chapter presented a bronze medal to Mr. Dale Richey, outstanding chemistry student at Hiram College, Hiram, Ohio, on Sunday, June 11, 1950, at the 100th commencement exercises. A student has been chosen from the University of Dayton for this award in June 1951.

The annual meeting of the Chapter is to be held on April 26, 1951, in Cleveland. The annual business meeting will be held at that time, followed by a talk by Mr. Leonard Church, technical director of Hill and Knowlton, Public Relations Counselors, whose topic will be, "The Public Relations Man Looks at the Professional Chemist". Following the dinner in the evening, Dr. Clyde E. Williams, Director, Battelle Memorial Institute, Columbus, Ohio, will be presented with the Ohio award.

New Consulting Service:

Formed by Dr. Herman W. Dorn, F.A.I.C., formerly director of research for Irwin, Neisler & Company, Decatur, Illinois. The new food and drug consulting firm is located at 719 South McClellan Avenue, Decatur, Illinois.

Elected: Dr. V. N. Morris, F.A.I.C., technical director of Industrial Tape Corporation, who has been made chairman-elect of the North Jersey Section of the American Chemical Society.

President: Harry W. Dippel, F.A.I.C., who has succeeded Ralph W. Bailey, retired, as president of Stillwell and Gladding, Inc., consulting chemists, 130 Cedar Street, New York 6, N.Y. Mr. Dippel will also continue as laboratory director. He has a record of over thirty years service with the firm.

New Fire-Resistant Process:

Patented by Ralph R. Oliver, F.A.I.C., and assigned to the Lockport Cotton Batting Company, Lockport, N.Y., where he has been employed for twenty-five years. Mr. Oliver and U.S. Patent No. 2,553,781 were featured in the *Union-Sun-Journal*, Lockport, June 13th.

Elected: Nicholas Opolonick, F.A.I.C., as life member of the Academy of Political Science, Columbia University, New York, N.Y.

Appointed: Loren B. Sjostrom, F.A.I.C., as chairman of the North-east Section of the Institute of Food Technologists. He is head of the Flavor Laboratory, Arthur D. Little, Inc., Cambridge, Mass. He is co-developer of a method called "Flavor Profiles," which has aroused widespread interest in the flavor field, and is the author of many papers on odor and flavor.

Elected: Edward Rosendahl, F.A.I.C., executive vice president of the Glyco Products Company, Inc., Brooklyn, N.Y., as a member of the Board of Directors of the Brooklyn Chamber of Commerce.

Non-exclusive License: To Bausch & Lomb Optical Company to produce high-energy X-ray and gamma ray absorbing glasses covered by U.S. Pat. No. 2,518,194, granted to Joseph J. Rothermel, Kuan Han Sun, and Alexander Silverman, Hon. AIC. (See THE CHEMIST, September 1950). Dr. Rothermel, Powder House Road, R.D. 3, Corning, N.Y. has been authorized to negotiate contracts for the patentees.

Twentieth Anniversary: Of Truesdail Laboratories, Inc., 4101 North Fugeroa Street, Los Angeles 65, Calif. Dr. Roger W. Truesdail, F.A.I.C., president of the Laboratories, reports that this thriving industrial laboratory started with a single room and one chemist.

New Officers: Elected by the American Oil Chemists' Society, A. E. Bailey, president; E. M. James, vice president, T. H. Hopper, F.A.I.C., secretary, and J. J. Vollertsen, treasurer.

Assignment: W. K. Menke, F.A.I.C., director of the General Development Department of Monsanto Chemical Company, announces that Edward B. Seaton, assistant to the director, has been assigned as resident technical representative in Europe, with headquarters in Paris.

Appointed: Dr. Frederick H. Adams as research associate at the Calco Chemical Division of American Cyanamid Company, Bound Brook, N.J. Dr. Hans Z. Lecher F.A.I.C., director of research, made the announcement.

Appointment: Announced by G. H. Mutersbaugh, F.A.I.C., general superintendent of the Paint and Varnish Division, The Glidden Company, of W. H. Geib as superintendent of the Glidden Company plant in Reading, Pa.

Featured on Television: (WABD): Edward S. Shanley, F.A.I.C., research chemist, Buffalo Electro-Chemical Company, Inc., who demonstrated how hydrogen peroxide is used for bleaching, as engine, rocket and submarine torpedo fuels, and for making blond furniture.

Opportunities

Doris Eager, M.A.I.C.

Positions Available

Assistant Group Leader; new department of well-established company. Ph.D., inorganic, analytical or physical chemistry. Develop and set up instrumental methods of analysis for plant control. New York State. Salary to \$8,000. Box 91, THE CHEMIST.

Analyst: M.S., B.S., with or without experience, instrumental analysis, inorganic or physical chemistry. Excellent opportunity for advancement. New York State. Salary dependent upon qualifications. Box 93, THE CHEMIST.

Chemists Available

Organic Chemist. F.A.I.C., Ph.D. organic chemistry. Assistant director of research in pharmaceuticals; technical director with essential oil house; currently technical adviser for bulk chemical manufacturer. Location desired: metropolitan New York. Box 90, THE CHEMIST.

Organic Chemist. F.A.I.C., Ph.D., organic chemistry, Cornell University. Experience includes sulfonation, alkylation, chlorination, polymerization. Specialties: insecticides, mothproofing, antiseptics, pharmaceuticals. Position desired: research and development. Location open. Box 92, THE CHEMIST.

Liaison Chemist. F.A.I.C. Liaison between technical departments and sales department in chemical or allied industry. Can write effective sales literature and prepare exhibits for salesmen's use. Interested in Chicago area only. Box 94, THE CHEMIST.

Patent Attorney. Ph.D. Columbia University, 1937, registered before U.S. Patent Office, over 5 years patent experience, plus 5 years industrial experience. Age 43, married and draft-exempt. Field of special knowledge, pulp and paper, petroleum, plastics, and synthetic paints. Available part time: Box 96, THE CHEMIST.

Information Wanted

To the Secretary:

I am writing for a group of people

interested in entering the vegetable oil field, particularly tung oil.

We would appreciate knowing what consulting or advisory services the members of your organization would provide in the processing and marketing of vegetable oils.

Please send us full details, including cost.

—Edward B. Levine
330 West End Ave.,
New York, N.Y.

New Association: The Technical Publishers Association, formed June 4th by twenty-eight owners and operators of technical publishing concerns. Purpose: To include services to industry and government on a contractual basis for (a) writing and editing instruction manuals, catalogs, technical sales materials, etc., (b) preparation of technical illustrations, (c) preparation of training and documentary films, (d) identification and classification of materials, and compilation of data for inventory control, etc. Newly elected officers are: Christian E. Burckel, president, George Cushing, vice president; F. R. Gruger, Jr., secretary, 30 Vesey St., New York 7, N.Y.; Bruce Leech, treasurer; and Charles H. McLaughlin, member of board of directors.

New Headquarters: For Thomas C. Wilson, Inc., manufacturers of industrial tube cleaners, safety bolts, etc., at 3147 North Broad St., Philadelphia 32, Pa. Henry Steffans is manager.

Expansion: Planned by the Solvay Process Division, Allied Chemical & Dye Corporation, of its Baton Rouge, Louisiana, soda ash plant. Estimated cost: \$15,000,000, which includes new equipment at the Company's limestone quarry in Prairie du Rocher, Illinois. A temporary office has been opened at 1742 North 21st St., Baton Rouge, to handle construction, engineering, and purchasing details of the project.

New Plant: Being built by Heyden Chemical Corporation at Fords, N.J., to double capacity for production of ortho-chloro-benzaldehyde and ortho-chloro-benzoic acids, source of chrome dyes for military uniforms, as well as for civilian use.

Golden Anniversary: Celebrated this year by Monsanto Chemical Company, St. Louis 4, Missouri. The company was founded in 1901 to manufacture saccharin. Now among the five largest chemical companies in the United States, Monsanto's 17,000 employees manufacture more than 400 products.

Appointed: By National Dairy Research Laboratories, Oakdale, Long Island, N.Y., Dr. Byron H. Webb, principal dairy technologist in the U.S. Bureau of Dairy Industry, as senior scientist to act as scientific adviser, and Dr. Edwin G. Stimpson as assistant director for biochemistry.

For Your Library

Amino Acids and Proteins

Compiled and edited by David M. Greenberg, Charles C. Thomas, 1951, 950 pp., \$15.00.

This volume contains thirteen chapters. Its authors are prominent protein chemists. Covered are properties of amino acids, peptides and proteins, and their isolation; determination of molecular size; electrophoresis; synthesis of peptides and amino acids, and of labeled amino acids; up-to-date tables of constants of proteins and their physical properties; nutritional and medical applications; chemistry of antibodies.

This volume includes much valuable material that is not reviewed in other books on proteins. Therefore, it is an important contribution to protein chemistry.

—Dr. Henry Tauber, F.A.I.C.

Preparation of Organic Intermediates

By David A. Shirley, Assoc. Prof. Chemistry, Tulane Univ., La. John Wiley & Sons, Inc. x—328 pp. 6 x 9. \$6.00.

This book contains preparative directions for over five-hundred organic compounds. The compounds have been selected on the basis that they are not available commercially or are relatively expensive; directions for their preparation have not been included in *Organic Syntheses* through Vol. 28; and their structure is simple but contains reactive functional groups which make them useful as intermediates. The starting materials have been chosen on the bases that they are commercially available at relatively low cost; the preparation has been given in *Organic Syntheses* or the preparation is given in the present volume.

Even with these restrictions, the author has had an enormous range of choice which he has exercised, naturally, according to his own best judgment. It is the reviewer's opinion that as far as a selection of only five-hundred compounds is concerned, the author has done quite well in his choice. On the other hand, the

methods are quoted cold from the original literature. The author states in his preface the possibility that there may be difficulty in reproducing some of the results for this reason and that the user will have to exercise his best judgment to select a procedure with a high probability of success. With the qualifications indicated, the reviewer finds the book a welcome addition to his own library and recommends it to anyone working in the field as a useful supplement to the old standard references on organic preparations.

—Karl M. Herstein, F.A.I.C.

Perfumery, Synthetics and Isolates

By Paul Z. Bedoukian, D. van Nostrand Co. 448 pages, indexed, 6"x9". 1951. \$7.00

The author is well known to the many readers of the *American Perfumer* where he has annually published his review of progress in perfumes, essential oils, and aromatic chemicals. In writing the current volume, he covers only the most widely used materials by industry, discussing their history, chemistry, physical and chemical properties, manufacturing procedures, uses and miscellaneous pertinent data.

If one can dare a comparison, the nearest publication is the *Givaudan Index*, which covers the principal materials manufactured by the company of the same name. The present tome is far more complete and covers a wider range of materials. In many cases, derivatives are at least mentioned, although in numerous instances, they too are described at length.

The author has made a pretty thorough search of the early and recent literature, quoting from it often. As a result, the book is quite complete.

The chapters on nitro-musks and the ionones contain not only documentary data, but are fascinatingly written to show the early development of these two classes of most useful aromatic materials.

Every book must have limitations, just so this one has been limited in scope and size. Yet this reviewer cannot allow the opportunity to escape to suggest further expansion of the volume. It would be most valuable if the compounds considered

could be expanded to include not only the commercially important ones but also those of theoretical interest such as the various derivatives of the different classical aromatics. The only noticeable omission is that of the so-called Schiff bases by name, for they are discussed briefly under anthranilates as a subject.

The book is well-written and clearly presented. Hundreds of references serve for further examination of each subject. This book will long be among the few already existing volumes on the wide subject of perfumes.

—M. G. deNavarre, F.A.I.C.

Chemical Books Abroad

Rudolph Seiden, F.A.I.C.

Schmorl & von Seefeld Nachf., Hannover: *Robert Koch*, by Bernhard Moellers, 1950, 756 pp. with 76 ill., DM 22.50. For enjoyable reading and documentary reference, this well-illustrated biography tops all the books written about Robert Koch (1843-1910), one of the greatest bacteriologists of all time. The author of this fine volume, once a pupil of Koch, and the publisher deserve commendation for a real contribution to the often neglected field of history of science. • *Wasser*, by Heinrich Kruse, 236 pp. with 85 ill., paper covers DM 25. A fascinating study of water which presents briefly all there is known about this subject. The book, if translated, would prove to be of interest not only to chemists and engineers, but also to physicians, bacteriologists, politicians, economists, and lawyers in this country.

Verlag Birkhaeuser, Basel: *Ins Innere von Kunststoffen, Kunstharzen und Kautschuken*, by Erich von Schmid, 2nd ed., 203 pp. with 130 ill., Sfr. 18.50. A competent, yet pleasantly readable, review of the thermo-plastic polymerisation products, caoutchoucs, and condensation resins, i.e., of the whole field of plastic masses with the exception of cellulose derivatives. • *Allgemeine Werkstoffkunde*, by Hans Staeger, 1947, 423 pp. with 296 ill., Sfr. 46.50. Author interprets clearly and concisely all the physical and chemical theories of, and their practical applications to, industrial raw materials. • *Rationelle Metallanalyse*, by A. Cohen, 1948, 404 pp. with 29 ill., Sfr. 46. A most valuable selection of dependable working methods

FOR YOUR LIBRARY

concerning the quantitative analysis of the many Al, Pb, Cu, Mg, Zn, and Sn alloys now marketed. The degree of assay-accuracy for each alloy component is given.

Verlag Wilhelm Knapp, Halle/Saale: *Die aetherischen Oele*, by R. Leimbach and Konrad Bournot, 2nd ed., 271 pp. with 14 ill., paper covers, DM 11. An authoritative description of the industrial production processes, properties, uses, assay methods, and composition of the volatile oils. With numerous literature references.

Oesterreichischer Apotheker - Verlag, Vienna: *Austria-Codex* 1950, by Otto Zekert, Wolfdietrich Weis, and Hans Brauner, 6th ed., 600 pp. A listing of 2700 therapeutic agents officially recognized in Austria, with information as to their manufacturers, compositions, dose recommendations, etc.

Friedr. Vieweg & Sohn, Braunschweig: *Anorganische Chemie*, by Ulrich Hofmann and Walter Ruedorff, 14th ed. 864 pp. with 116 ill. and 5 spectral tables, DM 25. In the March, 1951, issue of *The Chemist*, the 13th edition of this book was mentioned as being a reprint of the 10th edition (1943). The 14th, revised edition, brought up to date, contains new chapters dealing with basic salts; transition elements; poly acids; carbonyl and nitrosyl compounds and "waterlike" (ionizing) solvents, e.g., NH_3 , SO_2 , HF, HCN, etc.

Verlag Chemie, Weinheim/Bergstrasse: *Luminiszenz von Flüssigkeiten und festen Körpern*, by Peter Pringsheim and Marcel Vogel, 1951, 240 pp. with 73 ill., DM 18.60. This is the German translation of Prof. Pringsheim's English text about luminescence, with an 18-page supplement about the latest practical developments in the field. • *Chemie und Technik der Acetylen-Druck-Reaktionen*, by Walter Reppe, 1951, 131 pp. with 124 ill. and 6 tables, DM 9.50. The inventor of the so-called "Repe chemistry" discusses thoroughly the acetylene pressure-reactions, e.g., in the manufacture of vinyl ether and butenediol which, via butanediol, gives butadiene and Buna rubbers.

Wissenschaftlich Verlagsgesellschaft m. b.H., Stuttgart: *Pharmazeutisches Taschenbuch*, by Hans Kaiser, 4th ed., 785 pp., DM 28. A compilation of facts and figures,

mostly in the form of tables. It should be constantly useful for pharmaceutical chemists and pharmacists.

Hans Huber, Bern (Grune & Stratton, New York): *Medical Dictionary*, by Emmanuel Veillon, 1950, 1418 pp., \$18.75. A collection of about 100,000 scientific terms used in medical, biological, and pharmaceutical literature, uniting for the first time in a single volume three distinct vocabularies: German - English - French, French - German - English and English - French-German, each arranged in three synoptic columns. Similarly arranged dictionaries of terms used in other sciences and in industries—chemistry, metallurgy, etc.—should prove of great help to, and bring closer together, the research workers, teachers, translators, and progress-minded people in factories and laboratories.

Information

"Iscomist Industrial Aerosol Bombs." Descriptive literature. Innis, Speiden & Co., 117 Liberty St., New York, N.Y.

"Instrumentation for Coal Hydrogenation Processing at the Bureau of Mines Demonstration Plant, Louisiana, Missouri." 24-page brochure. Hank Cabot, Public Relations Director, Brown Instruments Division, Minneapolis-Honeywell Regulator Co., Philadelphia 44, Pa.

"Hysol Anti-corrosive Metal Primers & Surface Coatings." Houghton Labs., Inc., Olean, N.Y.

"Regulators." 32-page booklet. Spence Engineering Co., Inc., Walden, N.Y.

"Touch-O-Matic Bunsen Burner." Automatic flame control. Leaflet. Hanau Engineering Co., Inc., 1231-33 Main St., Buffalo 8, N.Y.

"New Visual Spectroscopic Instrument for Laboratory Use." Meyer Scientific Supply Co., Inc., 221 Atlantic Ave., Brooklyn 2, N.Y.

"Leco Ceramic Catalog," and "Leco Zircon Refractory Ware." Laboratory Equipment Corp., St. Joseph, Michigan.

"Corrosion Proof Cements." Bulletin No. 5-1. The Atlas Mineral Products Co., 43 Walnut St., Mertztown, Pa.

Condensates

Ed. F. Degering, F.A.I.C.

Buckman Labs., Inc.

About 48,000 diamonds, averaging about one-fourth carat each, were mined in Arkansas (the only American source) between 1906 and 1942, but further operations appear to be uneconomical.

Ingratitude is always a kind of weakness. I have never known men of ability to be ungrateful.

—GOETHE

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—For Instance

About five per cent of the adult female cattle in the United States are affected with brucellosis, representing an annual loss in milk production and veal calves of about \$92,000,000. Aureomycin may be the answer.

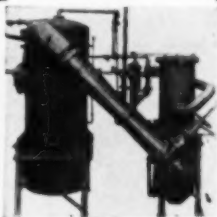
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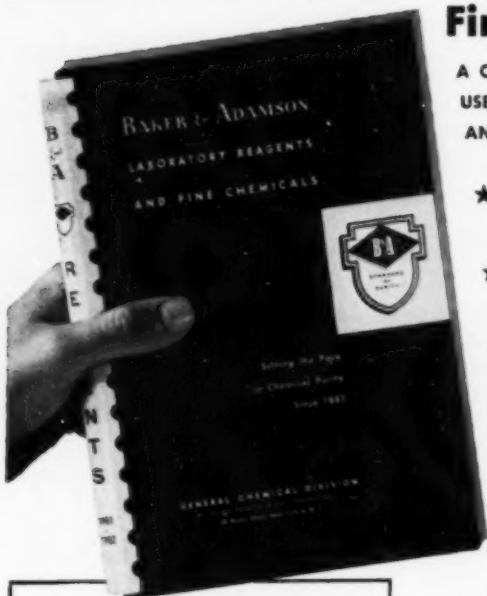
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